

What is claimed is:

1. A location registration control method, comprising the steps of:

5       broadcasting by a mobile communication network in a plurality of types of location areas, area identification information on said plurality of types of location areas, with each location area being included in one of a plurality of types of location area groups overlaying a communication service area, and each location area group being obtained by sectioning said communication service area into location areas by using one of a plurality of types of section patterns;

10       receiving at a communication terminal located within said communication service area, said area identification information on said plurality of types of location areas corresponding to a location of said terminal;

15       selecting at said communication terminal on the basis of said received area identification information on said plurality of types of location areas, a location area identification corresponding to a section pattern predetermined for use with said communication terminal; and

20       transmitting from said communication terminal to said mobile communication network, when a change in location of said communication terminal is indicated by a change in  
25       said location area identification selected in said terminal, a request for registration of said location change of said communication terminal in said network.

2. A location registration control method as claimed in Claim 1,

wherein each of said plurality of types of section patterns is used to section said communication service area such that the size of a location area differs depending on the type of section pattern to which it belongs.

3. A location registration control method as claimed in Claim 1,

wherein each of said plurality of types of section patterns is used to section said communication service area such that the shape of a location area differs depending on the type of section pattern to which it belongs.

4. A location registration control method as claimed in Claim 1, wherein:

said communication service area of said mobile communication network consists of a plurality of radio cells;

each one of said plurality of types of section patterns is used to section said communication service area consisting of said plurality of radio cells into a plurality of location areas, each of which comprises one or a plurality of radio cells; and

each one of said one or a plurality of radio cells is covered by one or a plurality of base stations performing radio communication with communication terminals.

5. A location registration control method as claimed in

Claim 4,

wherein said step of broadcasting area identification information includes broadcasting, from said one or plurality of base stations and through a control channel, area identification information on said plurality of types of location areas.

6. A location registration control method as claimed in Claim 1, further comprising the step of:

notifying, by said mobile communication network, said communication terminal of information specifying one of said plurality of types of section patterns.

7. A location registration control method as claimed in Claim 1,

wherein said section pattern predetermined for use with said communication terminal is decided by a user of said communication terminal and a service operator managing said mobile communication network on the basis of a projected usage pattern of said communication terminal.

8. A location registration control method as claimed in Claim 1,

wherein said section pattern predetermined for use with said communication terminal is decided by a service operator managing said mobile communication network on the basis of a projected frequency of calls incoming to said communication terminal.

9. A location registration control method as claimed in Claim 1,

wherein said section pattern predetermined for use with said communication terminal is decided by a service operator managing said mobile communication network on the basis of a projected movement range of said communication terminal.

10. A location registration control method as claimed in Claim 1,

wherein a plurality of section patterns are designated corresponding to a plurality of different time zones for said communication terminal;

the method further comprising the step of recording, at said communication terminal, the current time at which said area identification information is received; and

wherein said step of selecting a location area identification includes obtaining at said communication terminal information designating a section pattern corresponding to said recorded current time, on the basis of said information designating section patterns, so as to select a location area identification corresponding to said information designating a section pattern.

11. A location registration control method, comprising the steps of:

storing, at a communication terminal, data showing correspondence between a plurality of grouped location areas and radio cells belonging to each location area, each

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group being obtained by sectioning a communication service area into location areas by using one of a plurality of types of section patterns;

5 broadcasting, by said mobile communication network, in each of radio cells constituting said communication service area, cell identification information on said each one of radio cells;

receiving, at said communication terminal located in said communication service area, cell identification information on a radio cell where said communication terminal is presently located;

selecting, at said communication terminal as area identification information of a location area designating its own location on the basis of said received cell identification information and said stored data, a local area identification corresponding to a section pattern predetermined for use with the communication terminal; and

transmitting from said communication terminal to said mobile communication network, when a change in location of said communication terminal is indicated by a change in said location area identification selected in said terminal, a request for registration of said location change of said communication terminal in said network.

25 12. A location registration control method as claimed in Claim 11,

wherein said data showing said correspondence includes area identification information only on a location area group corresponding to a section pattern predetermined for

use with said communication terminal.

13. A location registration control method as claimed in Claim 11,

5        wherein said data showing said correspondence is transmitted from said mobile communication network to said communication terminal.

14. A mobile communication network, comprising:

storage means for storing data showing correspondence between a plurality of grouped location areas and radio cells belonging to each location area, each group being obtained by sectioning a communication service area into location areas by using one of a plurality of types of section patterns;

broadcasting means for broadcasting, in a plurality of types of location areas, area identification information on said plurality of types of location areas;

receiving means for receiving a signal requesting  
20 location registration from a communication terminal; and

registering means for registering in a location register, in the case of receiving a signal requesting location registration by said receiving means, a location area identification where said communication terminal is  
25 located as location information of said communication terminal, said location area identification being included in said signal requesting said location registration.

15. A mobile communication network, comprising:

storage means for storing data showing correspondence between a plurality of grouped location areas and radio cells belonging to each location area, each group being obtained by sectioning a communication service area into location areas by using one of a plurality of types of section patterns;

transmitting means for transmitting, to a communication terminal, said data stored in said storage means;

broadcasting means for broadcasting, in each of radio cells constituting said communication service area, cell identification information of said each one of radio cells;

receiving means for receiving, from said communication terminal, a signal requesting location registration; and

registering means for registering in a location register, in the case of receiving a signal requesting location registration by said receiving means, a location area identification where said communication terminal is located as location information of said communication terminal, said location area identification being included in said signal requesting said location registration.

16. A mobile communication network, comprising:

storage means for storing data showing correspondence between a plurality of grouped location areas and radio cells belonging to each location area, each group being obtained by sectioning a communication service area into location areas by using one of a plurality of types of section patterns;

broadcasting means for broadcasting, in each of radio cells constituting said communication service area, cell identification information of said each of radio cells;

registering means for registering in a location register, in the case of receiving a signal requesting location registration by said receiving means, a location area identification where said communication terminal is located as location information of said communication terminal, said location area identification being included in said signal requesting said location registration.

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storage means for storing information designating, on



the basis of said plurality of types of section patterns, a section pattern of a location area to be used for location registration of said communication terminal;

selecting means for selecting, on the basis of area  
5 identification information of said plurality of types of location areas received by receiving means, a location area identification corresponding to said information designating a section pattern stored in said storage means; and

transmitting means for transmitting to said mobile communication network, when a change in its own location is indicated by a change in said location area identification selected in said selecting means, a request for registration of said location change in said network.

18. A communication terminal as claimed in Claim 17,

further comprising time keeping means for recording the current time at which area identification information on said plurality of types of location areas is received by  
20 said receiving means; and

wherein said storage means stores information designating a location area section pattern to be used for said communication terminal corresponding to each time zone, on the basis of said plurality of types of section  
25 patterns; and

wherein said selecting means for selecting on the basis of area identification information on said plurality of types of location areas received by said receiving means, a location area identification corresponding to information

designating a section pattern after obtaining from said storage means information designating a section pattern corresponding to the current time recorded by said time keeping means.

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19. A communication terminal, comprising:

storage means for storing data showing correspondence between a plurality of grouped location areas and radio cells belonging to each location area, after receiving said data from a mobile communication network, each group being obtained by sectioning a communication service area into location areas by using one of a plurality of types of section patterns;

receiving means for receiving from said mobile communication network cell identification information of a radio cell where said communication terminal is presently located;

selecting means for selecting on the basis of said cell identification information received by said receiving means and said data stored in said storage means, a location area identification where said communication terminal is presently located; and

transmitting means for transmitting to said mobile communication network, when a change in its own location is indicated by a change in said location area identification selected in said selecting means, a request for registration of said location change in said network.

20. A communication terminal as claimed in Claim 17 or 19,

wherein said communication terminal is a portable phone.

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